

STABILIZED CONSTRUCTION ENTRANCE/EXIT WITHOUT WHEEL WASHING
N.T.S.

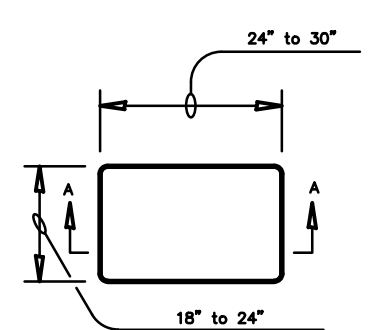
GENERAL NOTES:

- Clear all vegetation, roots and all other obstructions in preparation for grading.
- Prior to placing geotextile (filter fabric) make sure that the entrance is properly graded and compacted.
- To reduce maintenance and loss of aggregate place geotextile fabric (filter cloth) over the existing ground before placing the stone for the entrance.
- Stone should be placed to a depth of 6-inches or greater for the entire width and length.
- Width should be not less than full width of all points of ingress or egress. Flare the entrance where it meets existing road to provide a turning radius.
- Periodic maintenance will be required to prevent tracking onto public right-of-way or any roadway. All sediment spilled, dropped, or tracked onto any public right-of-way must be removed immediately.

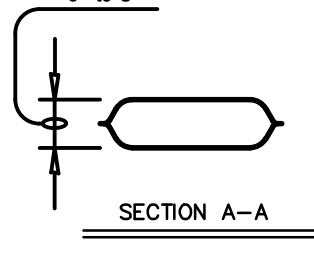
MATERIALS:

- Crushed stone 4-inches – 8-inches in diameter.
- Geotextile (filter fabric) with the properties listed below.

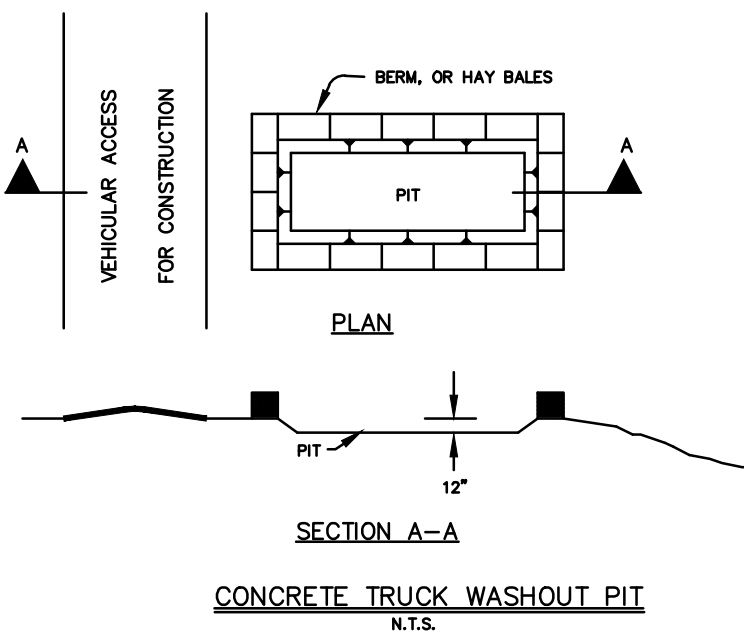
Physical Property	Requirements
Grab Tensile Strength	220 lbs. (ASTM D4632)
Elongation Failure	60% (ASTM D4632)
Mullen Burst Strength	430 lbs. (ASTM D3786)
Puncture Strength	125 lbs. (ASTM D4833)
Equivalent Opening	Size 40-80 (US Std Sieve)(ASTM D4751)



GRAVEL FILTER BAG DETAIL
N.T.S.



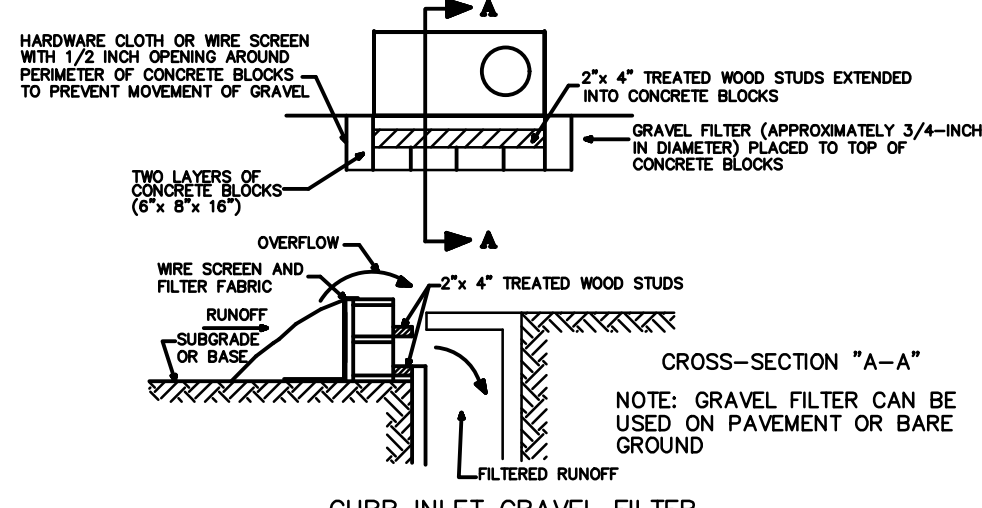
- The filter bag material shall be made of polypropylene, polyethylene or polyamide woven fabric, min. unit weight of 4 ounces/SY, Mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70%.
- The filter bag shall be filled with clean, medium to coarse gravel (0.31 to 0.75 inch diameter).



CONCRETE TRUCK WASHOUT PIT
N.T.S.

GENERAL NOTES:

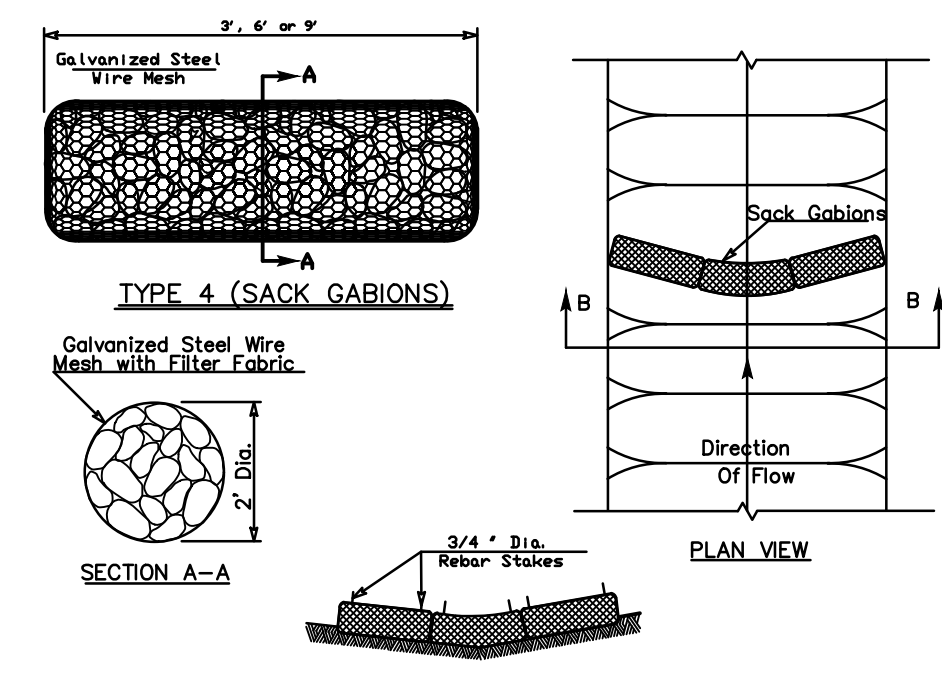
- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
- If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.
- Washout pit shall be located in an area easily accessible to construction traffic.
- Washout pit shall not be located in areas subject to inundation from storm water runoff.



CURB INLET GRAVEL FILTER
N.T.S.

GENERAL NOTES:

- All storm drainage systems inlets should filter runoff before the water is discharged into streams or onto adjacent properties, unless treatment is provided elsewhere.
- If no additional downstream treatment exists, the maximum drainage area tributary to and area drain installed with a gravel filter should be one acre.
- Curb inlet gravel filters should be constructed with a combination of concrete blocks, 1/2-inch wire screen, coarse (approximately 3/4-inch diameter) gravel and a 2" x 4" wood stud for support. Concrete blocks (6" x 8" x 16") may be placed either on their sides or stood on their ends depending on the area being served.
- Gravel filters can be used if the immediate and adjacent area to the drain consists of soil or pavement. However, only gravel filters should be installed on top of pavement.
- All curb inlet gravel filters should be inspected and repaired after each runoff event. Sediment should be removed when material is within three inches if the top of the concrete blocks. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters.
- Gravel can be placed in porous sacks which will allow water to flow through gravel and help prevent downstream migration of gravel.



TYPE 4 (SACK GABIONS)
N.T.S.

GENERAL NOTES:

- The top of the sack gabions should be level and oriented perpendicular to the direction of flow.
- Filter fabric material shall be fastened to woven wire support.
- Filter fabric material shall meet the following specifications: Resistant to ultraviolet light. Fabric should be non-woven geotextile with minimum weight of 3.5 ounces per square yard, minimum mullen burst strength of 200 pounds per square inch and a flow through rate of 120 gallons per minute per square foot of frontal area.
- Stone size: 2 1/4" - 8" open graded crushed limestone.
- Inspect weekly or after each rainfall event and repair or replace as needed.
- When silt reaches a depth of 6 inches or more above natural ground, silt shall be removed and disposed in an approved manner that will not contribute to resiltation. Contaminated sediment must be removed and disposed of off-site in accordance with applicable regulations.

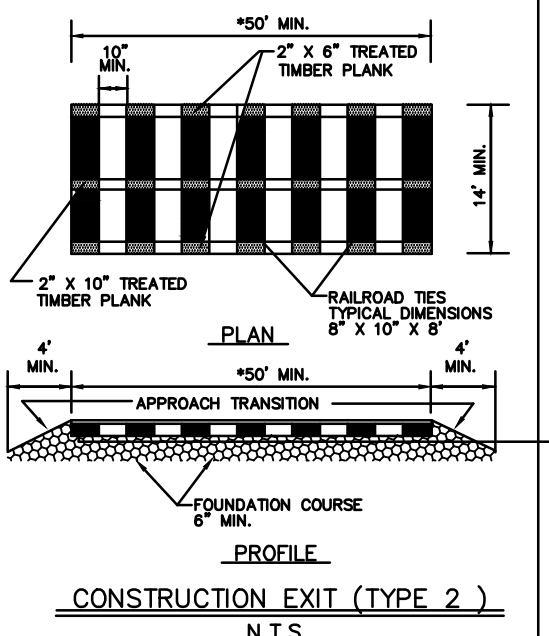
- Remove sack gabions after construction site is completely stabilized.

INSTALLATION:

- Layout the perpendicular to flow direction.
- Clear the area of debris, rocks or plants that will interfere with installation.
- Place wire mesh and filter fabric on the ground along the proposed installation with enough overlap to completely encircle the finished size of the berm.
- Place the rock along the center of the woven wire mesh taking care not to damage the filter fabric.
- Wrap the structure with the previously placed woven wire mesh secure enough so that when walked across the structure retains it's shape.
- Secure with tie wire.

MATERIALS:

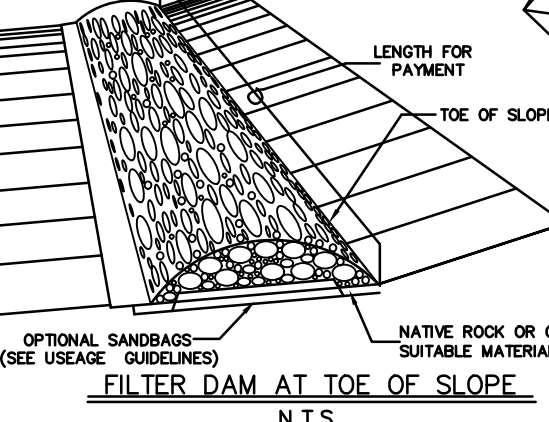
- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 70% strength retained after 500 hours.
 - Burlap of 10 ounces per square yard of fabric may also be used.
 - The filter fabric should be purchased in continuous rolls to minimize joints.
 - Woven wire support sheathing shall be a minimum 20 gauge with 1 inch openings.
- MAINTENANCE:**
- Inspect regularly and after every storm. Make any repairs necessary to ensure the sack gabions are in good working order.
 - Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
 - Clean or remove and replace the stone filter or filter fabric if they become clogged.
 - Sack Gabions should remain in place and operational until the drainage area is stabilized.



CONSTRUCTION EXIT (TYPE 2)
N.T.S.

GENERAL NOTES:

- The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50 ft.
- The treated timber planks shall be attached to the railroad ties with 1/2" x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
- The treated timber planks shall be #2 grade min. and should be free of large loose knots.
- The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
- The construction exit foundation course shall be flexible base, bituminous concrete, Portland cement concrete or other material as approved by the Engineer.
- The construction exit should be graded to allow drainage to a sediment trapping device.



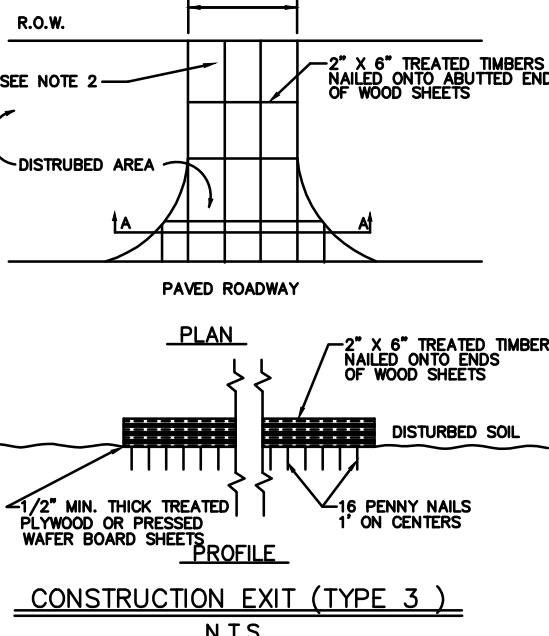
FILTER DAM AT TOE OF SLOPE
N.T.S.

GENERAL NOTES:

- If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream of drainage structures, and in roadway ditches and channels to collect sediment.
- Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by specification for rock filter dams for erosion and sediment control.
- Throck filter dimensions shall be as indicated on the SW3P plans.
- Side slopes should be 2:1 or flatter. Dams within the safety zone shall have side slopes of 6:1 or flatter.
- Maintain a minimum of 1 ft. between top of rock filter dam and top of embankment for filter dams at sediment traps.
- Filter dams should be embedded a minimum of 4 inches into existing ground.
- The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
- Rock filter dams types 2 & 3 shall be secure with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the heights and slopes and specified. The aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. The mesh should be secured or staked to the stream bed prior to aggregate placement.
- Sack gabions should be staked down with 3/4" dia. rebar stakes.
- Flow outlet should be onto a stabilized area (vegetation, rock, etc.)

GENERAL NOTES:

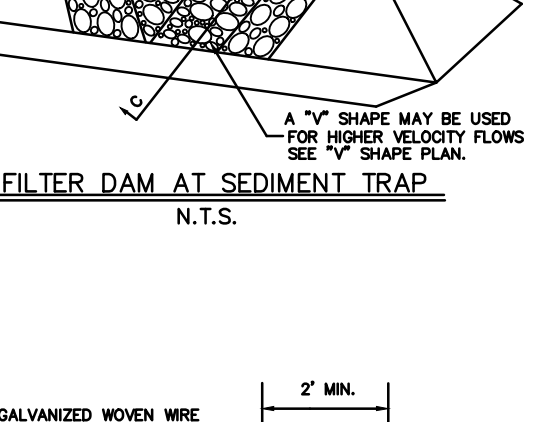
- Do not disturb vegetated areas (trees, grass, weeds, brush, etc.) any more than necessary for construction.
- Construction entrance/exit location and concrete washout pit to be determined in the field.
- Storm Water Pollution Prevention Controls may need to be modified in the field to accomplish the desired effect.
- Restrict entry/exit to the project site to designated locations by use of adequate fencing, if necessary.
- All Storm Water Pollution Prevention Controls are to be maintained and in working conditions at all times.
- Storm water pollution prevention structures should be constructed within the site boundaries.
- As soon as practical, all disturbed soil that will not be covered by impervious cover such as house slab, sidewalks, and driveway will be stabilized.
- This is a performance based plan. Actual field conditions may require different placement of erosion control measures. Contractor will be responsible for proper placement of erosion control devices to prevent contamination from leaving the construction site.



CONSTRUCTION EXIT (TYPE 3)
N.T.S.

GENERAL NOTES:

- The length of the type 3 construction exit shall be as indicated on the plans or directed by the Engineer.
- The type 3 construction exit may be constructed from open graded crushed with a size of two to four inches of spread, a minimum of 4" thick to the limits shown on the plans.
- The treated timber planks shall be #2 grade min. and should be free of large loose knots.
- The construction exit foundation course shall be flexible base, bituminous concrete, Portland cement concrete or other material as approved by the Engineer.
- The construction exit should be graded to allow drainage to a sediment trapping device.



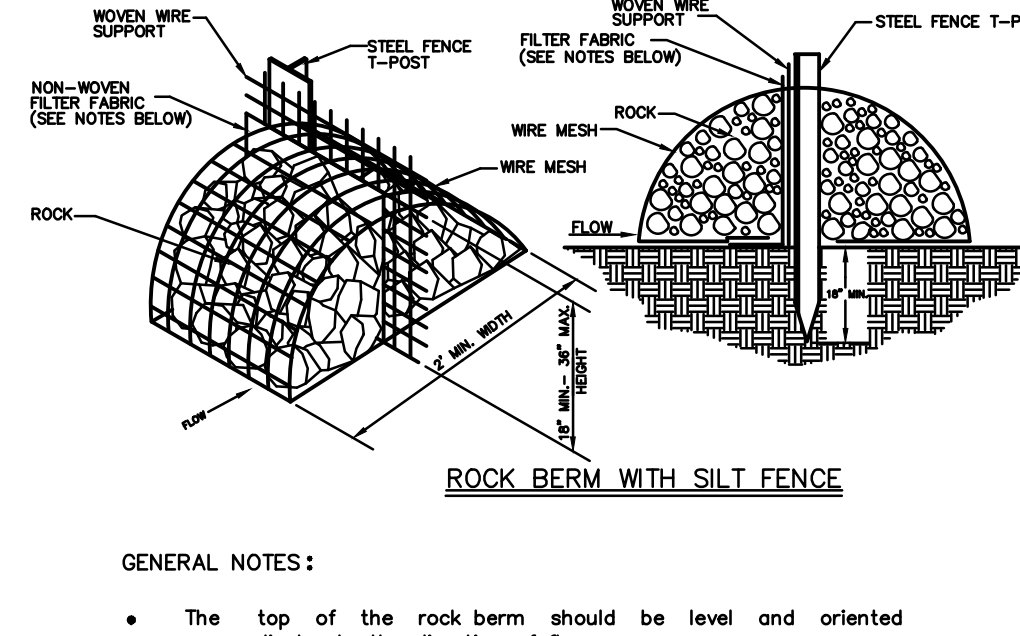
FILTER DAM AT SEDIMENT TRAP
N.T.S.

GENERAL NOTES:

- Rock filter dams should be constructed downstream from the disturbed area to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter maximum flow through rate of 60 GPM/SF of cross section area. A two year frequency storm may be used to calculate the flow rate.
- Type 1 (18" high with wire mesh) Type 1 may be used at the toe of the slopes, around inlets in small ditches, and at dikes or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated, high velocity flows (approx. 8 fps or more) in which aggregate erosion may occur. Sandbags may be used at embedded foundation (4" deep min.) for better filtering efficiency of low flows id called for on the plans or directed by the Engineer.
- Type 2 (18" high with wire mesh) Type 2 may be used in ditches or swale outlets.
- Type 3 (36" high with wire mesh) Type 3 may be used in stream flow and should be secured in the stream bed.
- Type 4 (Sack Gabions) Type 4 may be used in ditches and in smaller channels to form and erosion control dam.

GENERAL NOTES:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the rock berm is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Rock berm should remain in place and operational until the drainage area is stabilized.



ROCK BERM WITH SILT FENCE
N.T.S.

GENERAL NOTES:

- The top of the rock berm should be level and oriented perpendicular to the direction of flow.
- Steel fence T-posts should be embedded a minimum of 18 inches.
- Woven wire support shall be fastened to steel fence posts.
- Filter fabric material shall be fastened to woven wire support.
- Filter fabric material should meet the following specifications: Resistant to ultraviolet light, Fabric should be non-woven geotextile with minimum weight of 3.5 ounces per square yard, minimum mullen burst strength of 200 pounds per square inch and a flow through rate of 120 gallons per minute per square foot of frontal area.
- Stone size: 2 1/4" - 5" open graded crushed limestone.
- Inspect weekly or after each rainfall event and repair or replace as needed.
- When silt reaches a depth of 6 inches or more above natural ground, silt shall be removed and disposed in an approved manner that will not contribute to resiltation. Uncontaminated sediment deposits remaining in place after the filter fence has been removed should be dressed to conform with the existing grade and stabilized. Contaminated sediment must be removed and disposed of off-site in accordance with applicable regulations.
- Remove silt fence/rock berm after construction site is completely stabilized.

INSTALLATION:

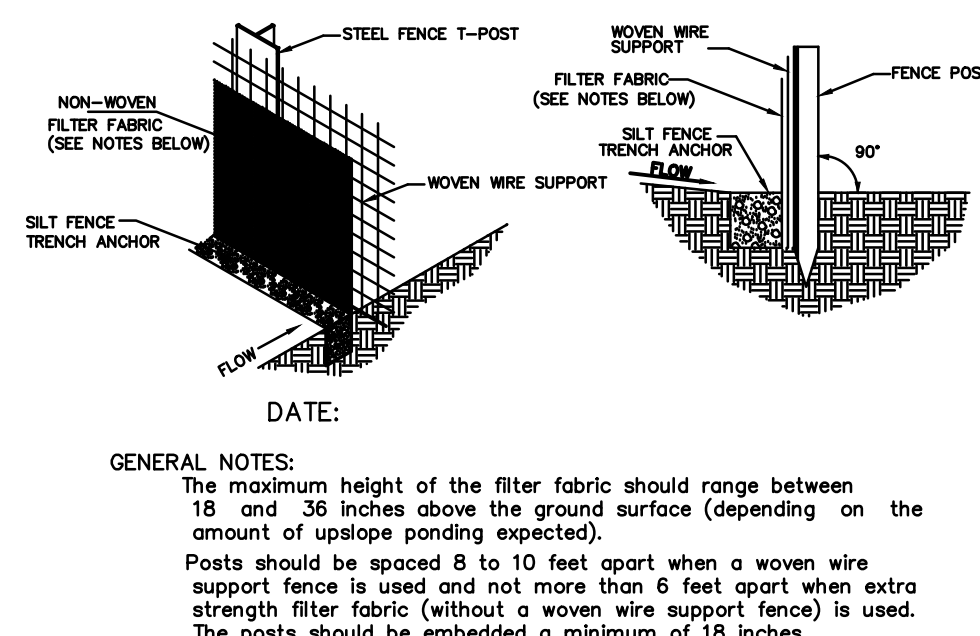
- Layout the rock berm following the contour as closely as possible.
- Clear the area of debris, rocks or plants that will interfere with installation.
- Place wire mesh on the ground along the proposed installation with enough overlap to completely encircle the finished size of the berm.
- Install the silt fence (steel-t posts, woven wire support, and filter fabric) along the center of the proposed placement.
- Place the rock along the center of the woven wire mesh on both sides of the silt fence to the designated height.
- Wrap the structure with the previously placed woven wire mesh secure enough so that when walked across the structure retains it's shape.
- Secure with tie wire.

MATERIALS:

- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 70% strength retained after 500 hours.
- Burlap of 10 ounces per square yard of fabric may also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.
- Woven wire support sheathing shall be a minimum 20 gauge with 1 inch openings.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the rock berm is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Rock berm should remain in place and operational until the drainage area is stabilized.



ROCK BERM WITH SILT FENCE
N.T.S.

GENERAL NOTES:

- The maximum height of the filter fabric should range between 15 and 36 inches above the ground surface (depending on the amount of upslope ponding expected).
- Posts should be spaced 8 to 10 feet apart when a woven wire support fence is used and not more than 6 feet apart when extra strength filter fabric (without a woven wire support fence) is used. The posts should be embedded a minimum of 18 inches.
- A trench should be excavated 4 to 8 inches wide and 4 to 12 inches deep along the upslope side of the line of posts.
- If standard strength filter fabric is to be used, the optional woven wire support fence should be fastened to the upslope side of the posts. Extend the woven wire support to the bottom of the trench. The filter fabric should be fastened using 4 evenly spaced staples or T-clips to the woven wire support fence, and 8 to 20 inches of the fabric should extend into the trench.
- Extra strength filter fabric does not require a woven wire support fence. Fastened the filter fabric directly to the posts and extend 8 to 20 inches of the fabric into the trench.
- Where joints in the filter fabric are required, the filter fabric should be spliced together only at a support post, with a minimum 6-inch overlap and securely sealed.
- Do not attach filter fabric to trees.
- Backfill the anchor trench with compacted soil or 0.75 inch minimum diameter gravel placed over the filter fabric.
- Remove silt fence when the construction site is completely stabilized.
- Inspect silt fences daily during periods of prolonged rainfall, immediately after each rainfall event, and weekly during periods of no rainfall. Make any required repairs immediately.
- Sediment must be removed when it reaches a depth of 6". Take care to avoid damaging the fence during cleanout.
- Silt fences should not be removed until the upslope area has been permanently stabilized. Contaminated sediment deposits must be removed and disposed of off-site in accordance with applicable regulations. Uncontaminated sediment deposits remaining in place after the silt fence has been removed should be dressed to conform with the existing grade, and stabilized.
- Place silt fence along a line of uniform elevation, perpendicular to the direction of flow.

MATERIALS:

- Fence posts may be either 4" min. steel or wood posts spaced at 6' to 8'. Steel post shall be 3" min. dia. or nominal 2" x 4". Hard wood posts shall have a min. cross section 1.5" x 1.5".
- Synthetic filter fabric should be a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn conforming to the requirements below:

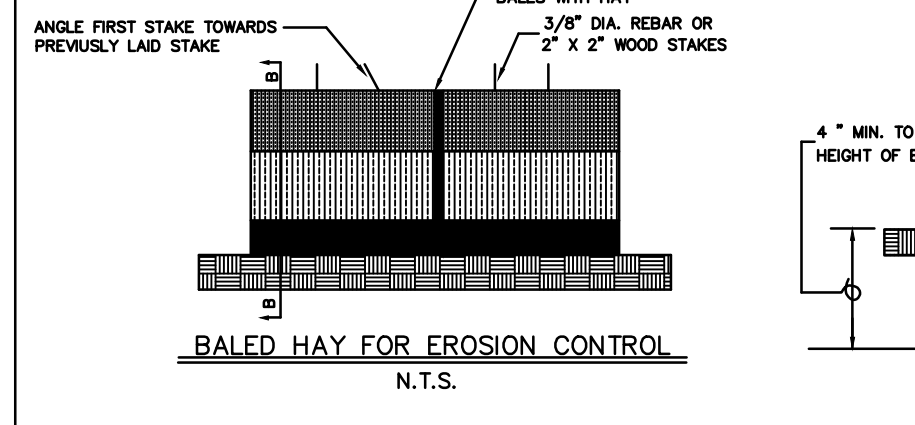
SYNTHETIC FILTER FABRIC REQUIREMENTS

Physical Property	Requirements
Minimum Weight	3.5 ounces per square yard (ASTM 3776-84)
Min. Mullen Burst Strength	200 lbs per square inch (ASTM 3786-87)
Maximum flow through rate	100 GPM/SF of frontal area (ASTM 4491-85)

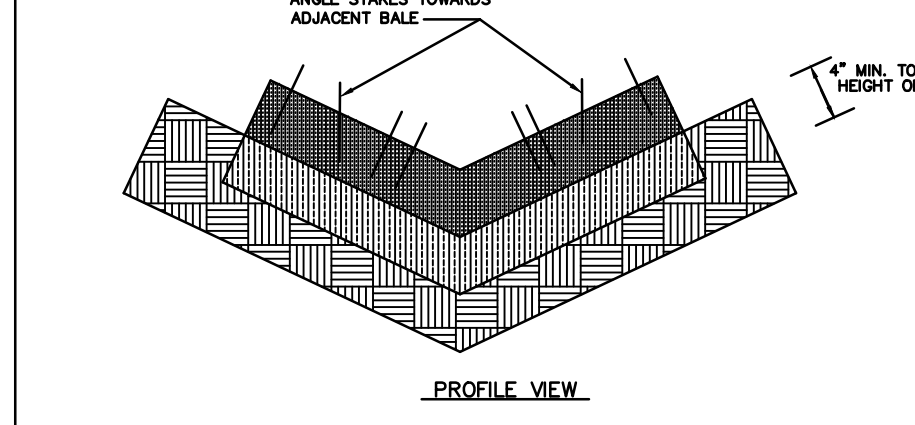
- Burlap of 10 ounces per square yard of fabric can also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Inlet protection should remain in place and operational until the drainage area is stabilized.



BALED HAY FOR EROSION CONTROL
N.T.S.



BALED HAY USAGE GUIDELINES
N.T.S.

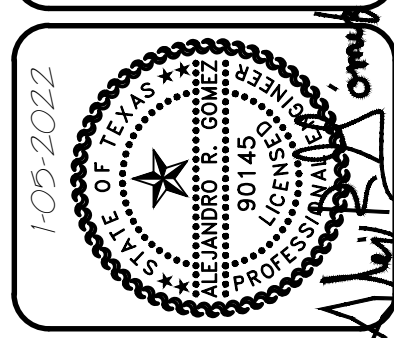
GENERAL NOTES:

- A baled hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter the maximum flow thru rate of 5 GPM/sf of cross sectional area. Baled hay may be used in the following locations:
- Where the runoff approaching the baled hay slope of the disturbed soil shall not exceed 10% and the length of the slope upstream of the hay bale should be less than 50'.
- Where the installation will be required for less than three months.
- Where the contributing drainage area is less than 1/2 acre.
- For baled hay installations in small ditches, the additional following considerations apply: The ditch side slopes shall be graded as flat as possible to maximize the drainage flow rate thru the hay.
- The ditch shall be graded large enough to contain the overlapping drainage when sediment has filled to the top of the baled hay.
- Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.

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REVISIONS:	DESCRIPTION:
NO. DATE	

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(210) 832-9608 - (210) 832-9615 FAX
TXBE FIRM REGISTRATION #5362



HERON VALLEY

STORM WATER POLLUTION PREVENTION PLAN DETAILS

DESIGN AG
DRAWN JT
CHECKED AG
DATE AGO 2022
JOB NO. 378.001
SHEET
4 OF 54